

Alden Leeds, Inc.

Manufacturer of chemicals that care for your pool:
Technical Document #1

ACID & BASE DEMAND CALCULATIONS

Don't overlook the importance of performing Base Demand Tests if your pH is 6.8 or lower and Acid Demand Tests if your pH is 8.2 or higher.

Many water samples are being reported with pH-- 6.8 when, in fact, the true pH might be 5.0-6.5! Taking time to perform the Base Demand Test will take the guess work out of adjusting the pH. Look at the difference:

pH Reading	Amount of Product Needed to Attain pH=7.5
6.8	15 lbs. Sodium Carbonate per 10,000 gallons
6.5	4.5 lbs. Sodium Carbonate per 10,000 gallons
6.0	10-12 lbs. Sodium Carbonate per 10,000 gallons

If a pool owner uses 1.5 lbs. of Sodium Carbonate when 5 or 10 lbs. is actually required, the pH reading will still appear as 6.8.

Rule of thumb: For each drop of Base Demand, use one-third (1/3) lb. of Sodium Carbonate per 10,000 gallons.

The calculation for Acid Demand reveals a similar pattern with an extra complication related to the level of Total Alkalinity. This is especially true in hard water areas and with curing plastered pools. An extra amount of acid may be needed to lower the both Total Alkalinity and pH.

pH Reading	Amount of Dry Acid Needed to Attain pH= 7.5
8.2	1.5 lbs. Dry Acid per 10,000 gallons
8.5	4-5 lbs. Dry Acid per 10,000 gallons
9.0	10-12 lbs. Dry Acid per 10,000 gallons

For those who prefer Muriatic Acid, the conversion factor from Dry Acid to Muriatic Acid (Hydrochloric Acid) is:

10 lbs. of Dry Acid -- One (1) Gallon of Muriatic Acid

Because of the connection between high pH and high Total Alkalinity the following information should be considered. The most common technique to reduce Total Alkalinity is to pour Muriatic Acid in a series of "pockets" in the deep end of a pool, keeping away from the walls and floor, if possible. Use of Muriatic Acid seems to reduce Total Alkalinity with less impact on pH than use of Dry Acid.

Rule of thumb: 1 Gallon of Muriatic Acid reduces 60 ppm of Total Alkalinity in 10,000 gallons.